outputting a message from each spare link of each said nodes to the adjacent node to which said each spare link is connected;

identifying the port number of said each node from where said each spare link outputs said message and the port number of the adjacent node connected to said each spare link whereat said message is received;

storing as data, in one location, the respective port numbers of all nodes that have connected thereto at least one spare link via which said message is either sent or received, the identities of said all nodes and the spare links interconnecting said all nodes;

generating from said stored data the topology of all spare links interconnecting all the nodes of said network; and

providing said generated topology of the spare links of said network to an origin node.

3. (Original) The method of claim 1, wherein when a failure occurs in said network, further comprising the step of:

transmitting from each of the custodial nodes of the failed link a message, via any functional spare links that it has, to nodes downstream thereof to inform said downstream nodes that it is a custodial node.

4. (Original) The method of claim 1, further comprising the steps of:

selecting one of the custodial nodes of a failed link to be the origin node; and

said origin node utilizing said topology of the spare capacity of said network to find an alternate route to reroute the disrupted traffic.

5. (Previously Amended) The method of claim 1, further comprising the steps of:

continuously updating the status of said message arriving at each spare port of the nodes of said network; and

storing said updated status in said central processing means;

wherein said central processing means is adaptable to use said updated status to provide a real time topology of the spare capacity of said network.

6. (Previously Amended) In a distributed restoration algorithm (DRA) provisioned telecommunications network having a plurality of nodes interconnected with working and spare links, a method of continuously monitoring the available spare capacity of said network, comprising the steps of:

generating keep alive messages;

continuously exchanging said keep alive messages on the spare links of said network when a DRA event is not in progress; and

recording the various spare ports that transmitted and received said keep alive messages to determine the number of spare links available in said network, wherein each of said keep alive messages includes,

a first field containing the identification number of the node that sent said message,

a second field containing the identification number of the port of said node whence said message is output, and

a third field having an identifier that is set to a specific value when said node is one of the custodial nodes that bracket a failed link.

8. (Previously Amended) The method of claim 7, wherein each of said keep alive messages includes a fourth field identifying said keep alive message to be a message that is continuously transmitted and exchanged along spare links between adjacent nodes of said network while a DRA process is not in progress.

9. (Previously Amended) The method of claim 1, wherein the message in the outputting step comprises:

a first field containing the identification number of the node that sent said message;

a second field containing the identification number of the port of said node whence said message is output; and

a third field having an identifier that is set to a specific value when said node is one of the custodial nodes that bracket a failed link;

wherein, when there is a failed link, said message is broadcast from one of the custodial nodes that bracket said failed link.

10. (Previously Amended) The method of claim 9, wherein the message further comprises:

a fourth field for identifying said message to be a message that is continuously transmitted and exchanged along spare links between adjacent nodes of said network while a DRA process is not in progress.

11. (Currently Amended) A method for providing network restoration, the method comprising:

centrally storing identification information of a plurality of spare links interconnecting a plurality of nodes, the identification information including port numbers of the nodes;

generating topology information of the plurality of spare links based on the stored identification information; and

transmitting the generated topology information to an origin node.

12. (Original) A method according to claim 11, further comprising:

receiving a message from one of the plurality of nodes, wherein the message contains the identification information.

13. (Original) A method according to claim 12, wherein the message includes:

a field specifying an identification number of the one node;

a field specifying identification number of the port of the one node; and

a field indicating whether the one node is a custodial node.

14. (Original) A method according to claim 13, wherein the message further includes:

a field indicating that the message is to be continuously transmitted and exchanged along the plurality of spare links.

15. (Currently Amended) A system for providing network restoration, the system comprising:

a plurality of nodes interconnected by a plurality of spare links; and

a support system communicating with the plurality of nodes, the support system configured to store identification information of the plurality of nodes, the identification